

TRAINING BALL BAT HAVING A DETACHABLE BALL-STRIKING ELEMENT AND METHOD FOR USING SAME

Technical Field and Background of the Invention

[0001] This application is a continuation of Application No. 10/024,300 filed December 17, 2001. This invention relates to a training bat for use by baseball and softball players for improving hand/eye coordination during batting activity. In general, the training bat operates by training the batter to hit a ball with a bat having a substantially smaller diameter than a conventional baseball bat. The ball may be the same size as or smaller than the regulation size baseball or softball. When the batter uses a regulation wooden or aluminum bat after having practiced with the training bat, greater success in hitting the ball is achieved. This is due to the improved hand/eye coordination developed as a result of having to adapt to hitting a ball with a bat of much smaller diameter. Notwithstanding the smaller diameter of the ball-striking portion of the training bat, the bat is generally the same weight and length as conventional bats to maximize the effectiveness of the training bat. In addition, weight is distributed at both the proximal and distal ends of the training bat to simulate the sensation of a conventional bat.

[0002] Conventional ball bats are identified by weight, length and a number which correlates these two numbers. For example, a typical bat length is 31 inches, and a typical bat weight is 28 oz. Such a bat is referred to as a "-3" bat, by subtracting the length in inches from the weight in ounces. (28 minus 31 = -3). Bats can be made lighter or heavier for a given length. Thus, a 31 inch bat which weights 31 oz. is referred to as a "0" bat, whereas a 31 inch bat which weighs 25 oz. is referred to as a "-6" bat. These sizes and relationships are critical to fitting a bat to an individual player so that the player achieves optimal results, taking into account the player's age, size, strength, experience and the like.

[0003] The training bat disclosed and claimed in this application is designed to be alterable so as to achieve the same relationship between weight and length as is present

in conventional wooden or aluminum bats used during regulation play. In addition, the training bat is designed so that weight is distributed at both proximal and distal ends of the bat producing a more natural feel for the user. By doing this, the training effect achieved by using the bat is enhanced.

Summary of the Invention

[0004] Therefore, it is an object of the invention to provide a training bat which simulates a conventional baseball bat in weight, length and balance.

[0005] It is another object of the invention to provide a training bat which can be easily varied in weight to achieve a particular weight to length ratio without affecting the balance of the bat.

[0006] It is another object of the invention to provide a training bat which is an effective training aid.

[0007] It is another object of the invention to provide a training bat which can be used to practice in a small area.

[0008] It is another object of the invention to provide a training bat which is safe for use by players of various skill and training levels.

[0009] These and other objects of the present invention are achieved in the preferred embodiments disclosed below by providing a training bat having a handle with proximal and distal ends, an elongate ball-striking element with proximal and distal ends and a diameter no greater than one-half the diameter of a conventional baseball bat for providing a training effect as the bat is used to swing at a ball, and a connecting member connected at the distal end of the handle for receiving the proximal end of the ball-striking element and detachably connecting thereto.

[0010] According to one preferred embodiment of the invention, the training bat's handle conforms in shape and size to a handle of a conventional baseball bat.

[0011] According to another preferred embodiment of the invention, the ball-striking element is a metallic rod.

[0012] According to yet another preferred embodiment of the invention, the ball-striking element extends outwardly from the handle and the combined length of the handle and the ball-striking element are equivalent to the length of a conventional baseball bat.

[0013] According to yet another preferred embodiment of the invention, the weight of the training bat is equivalent to the weight of a conventional baseball bat.

[0014] According to yet another preferred embodiment of the invention, the weight of the training bat is adjustable to a desired weight by detaching the ball-striking element from the connecting member, placing or removing a desired number of weights on the connecting member, and reconnecting the ball-striking element to the connecting member.

[0015] According to yet another preferred embodiment of the invention, the training bat includes a weight assembly positioned on the connecting member.

[0016] According to yet another preferred embodiment of the invention, the training bat includes a weight assembly positioned on the connecting member and held in place by frictional engagement with the distal end of the handle and the proximal end of the ball-striking element.

[0017] According to yet another preferred embodiment of the invention, the weight assembly includes at least one weight having a hole therein for placement of the weight onto the connecting member.

[0018] According to yet another preferred embodiment of the invention, the weight assembly includes a plurality of weights, each having a hole therein for being selectively placed on and removed from the connecting member as desired to change the weight of the bat.

[0019] According to yet another preferred embodiment of the invention, the training bat includes a handle having proximal and distal ends, a receiving rod secured within a

bore defined by the handle at the distal end of the handle and extending outwardly therefrom, and an elongate ball-striking element having proximal and distal ends. The ball-striking element is detachably connected to the receiving rod at the proximal end of the ball-striking element, and the ball-striking element has a diameter no greater than one-half the diameter of a conventional baseball bat to provide a training effect as the bat is used to swing at a ball.

[0020] According to yet another preferred embodiment of the invention, the ball-striking element is a cylindrical rod made of metal.

[0021] According to yet another preferred embodiment of the invention, the training bat includes a weight assembly positioned at the distal end of the ball-striking element to simulate the weight distribution of a conventional baseball bat.

[0022] According to yet another preferred embodiment of the invention, the ball-striking element is hollow and of a slightly larger diameter than the receiving rod, and the receiving rod is inserted into the ball-striking element.

[0023] According to yet another preferred embodiment of the invention, the training bat includes a screw extending through aligned apertures defined by the ball-striking element and the receiving rod to connect the ball-striking element and the receiving rod together as a unit.

[0024] According to yet another preferred embodiment of the invention, the training bat includes a weight assembly on the receiving rod held in place by frictional engagement with the distal end of the handle and the proximal end of the ball-striking element.

[0025] According to yet another preferred embodiment of the invention, the training bat includes a resilient spacer for accommodating space between the weight assembly and the handle.

[0026] A method of the invention for adjusting the weight of a training bat to a predetermined weight includes the steps of providing a training bat having a handle with

proximal and distal ends, and a receiving rod secured within a bore defined by the handle at the distal end of the handle and extending outwardly therefrom, an elongate hollow ball-striking element with proximal and distal ends and a diameter slightly greater than said receiving rod. The ball-striking element is positioned on the receiving rod and detachably connected to the receiving rod at the proximal end of the ball-striking element by a screw positioned through aligned apertures defined by the ball-striking element and the receiving rod, and has a diameter no greater than one-half the diameter of a conventional baseball bat for providing a training effect as the bat is used to swing at a ball. In addition, a weight assembly is positioned on the receiving rod that is held in place by frictional engagement with the distal end of the handle and the proximal end of the ball-striking element. The screw is removed from the apertures defined by the ball-striking element and the receiving rod. The ball-striking element is moved off of the receiving rod. A desired number of weights is placed on or removed from the ball-striking element. The ball-striking element is positioned back on the receiving rod so as to align the apertures of the ball-striking element and the receiving rod. Finally, the screw is replaced in the apertures to reconnect said ball-striking element to the receiving rod.

[0027] A method of the invention for making a training bat having a desired weight includes the steps of providing a handle having proximal and distal ends, providing a receiving rod for securing within a bore defined by the handle at the distal end of the handle and extending outward therefrom, varying the weight of the receiving rod so that the handle and the receiving rod have a combined desired weight, providing a ball-striking element having a predetermined weight and a larger diameter than the receiving rod, and positioning the ball-striking element on the receiving rod and detachably connecting it thereto.

[0028] According to one preferred embodiment of the method of the invention for making a training bat having a desired weight, the step of varying the weight of the

receiving rod includes varying the weight of the receiving rod so that the combined weight of the handle and the receiving rod equal 15.8 to 16.2 ounces.

[0029] According to another preferred embodiment of the method of the invention for making a training bat having a desired weight, the step of providing a ball-striking element includes providing a ball-striking element having a larger diameter than the receiving rod and having a weight of 8.6 ounces.

[0030] According to yet another preferred embodiment of the method of the invention for making a training bat having a desired weight, the step of positioning the ball-striking element on the receiving rod includes sliding the ball-striking element onto the receiving rod until the proximal end of the ball-striking element contacts the distal end of the handle.

[0031] According to yet another preferred embodiment of the method of the invention for making a training bat having a desired weight, the step of placing a predetermined number of weights on the receiving rod includes placing an appropriate number of weights on the receiving rod to obtain a desired total weight of the training bat in relation to the length of the training bat.

[0032] Yet another preferred embodiment of the method of the invention for making a training bat having a desired weight includes the step of placing a predetermined number of weights on the receiving rod to obtain a desired total weight of said training bat.

[0033] A method of the invention for developing and enhancing ball hitting ability includes the steps of providing a training bat comprising a handle having proximal and distal ends, an elongate ball-striking element having proximal and distal ends and a diameter no greater than one-half the diameter of a conventional baseball bat, and a connecting member connected at the distal end of the handle for receiving the proximal end of the ball-striking element and detachably connecting thereto, providing a ball,

pitching the ball to a batter using said training bat, and swinging the training bat at the pitched ball in an attempt to hit the ball.

[0034] According to one preferred embodiment of the method of the invention for developing and enhancing ball hitting ability, the step of providing a ball includes providing a ball that is smaller than a conventional baseball.

Brief Description of the Drawings

[0035] Some of the objects of the invention have been set forth above. Other objects and advantages of the invention will appear as the invention proceeds when taken in conjunction with the following drawings, in which:

[0036] Figure 1 is an environmental view of a training bat according to an embodiment of the invention in use;

[0037] Figure 2 is a perspective view of a training bat according to a preferred embodiment of the invention;

[0038] Figure 3 is a vertical cross-sectional view of the bat through the screw which connects the ball-striking element and receiving rod together;

[0039] Figure 4 is an enlarged perspective view of the training bat shown in Figure 2 with parts broken away; and

[0040] Figure 5 is an exploded perspective view of the training bat shown in Figures 1 through 4.

Description of the Preferred Embodiment and Best Mode

[0041] Referring now specifically to the drawings, a training bat according to the present invention is illustrated in Figure 1 and shown generally at reference numeral 10. The training bat 10 is designed to have the same weight, length and balance as a bat that a baseball or softball player would ordinarily use during regulation play. The training bat

10 is comprised of three principal elements: a handle 11, a ball-striking element 12 and a connecting rod 13, shown in detail in Figures 2, 4 and 5. A looped hand strap 14 is attached to the end of the handle 11 of the training bat 10. By extending the lowermost hand through the strap 14, as shown in Figure 1, the training bat 10 is prevented from being inadvertently thrown by the player should he lose his grip during a swing.

[0042] Referring now to Figure 2, the handle 11 is preferably formed of aluminum or wood and shaped to duplicate the size and feel of a conventional baseball bat. Preferably, the handle 11 is approximately 14 inches long. The handle 11 may be wrapped with tape to improve the grip as in conventional bats. The opposite ends of the handle 11 define a proximal end 11A and a distal end 11B.

[0043] The handle 11 also includes an axially-extending bore 15 that begins at the distal end 11B and extends approximately $4\frac{1}{2}$ inches into the handle 11, as shown in Figure 4. The bore preferably has a diameter of approximately $\frac{9}{16}$ inch. The connecting rod 13 is positioned within the bore, as shown in Figures 2 and 4. The connecting rod 13 preferably has an outer diameter of approximately $\frac{1}{2}$ inch so that it fits tightly within the bore. The connecting rod 13 preferably has a total length of approximately 12 inches and extends within the handle 11 to the end of the bore 15 so that approximately $7\frac{1}{2}$ inches of the connecting rod 13 extends outward from the distal end 11B of handle 11.

[0044] The connecting rod 13 is preferably constructed of solid zinc-plated steel or aluminum and is secured within the bore 15 by a suitable adhesive such as an epoxy, and by a pin 16 which extends radially through an aperture 17 in one side of the handle 11, a mating aperture 18 in the connecting rod 13 and another aperture 19 which extends only partially through the other side of the handle 11. See Figures 4 and 5. This prevents the pin 16 from either being accidentally or deliberately pushed out one side of the handle 11 by pressure on the opposite side.

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[0045] The diameter of the ball-striking element 12 is substantially less than the diameter of a conventional bat and may preferably be $\frac{9}{16}$ inch. The preferred ball-striking element 12 is fabricated of copper tubing. To connect the ball-striking element 12 to the handle 11, connecting rod 13 is inserted into the proximal end 12A of ball-striking element 12 such that a threaded aperture 20 in the connecting rod 13 is aligned with a similarly sized threaded aperture 21 in the ball-striking element 12. See Figure 4. The interior of the connecting rod 13 has threads where the aperture 20 is defined. A screw 22, preferably a $\frac{3}{4}$ inch 632 screw, is screwed into the threaded apertures 20 and 21 to connect the ball-striking element 12 and connecting rod 13 together as a unit, as shown in Figures 3 and 4. Shrink tubing, not shown, covers the connecting rod 13 to prevent slippage between the ball-striking element 12 and the connecting rod 13 .

[0046] A weight assembly 23 is positioned at the distal end 12B of the ball-striking element 12. By adding weight at the distal end of the ball-striking element 12, the training bat 10 simulates the weight distribution of a conventional bat, resulting in a more realistic feel to the batter when swinging the training bat 10. The weight assembly 23 preferably comprises a plurality of individual washer-shaped weights 23a, 23b, 23c and 23d, each having a circular hole with a diameter equal to or less than the ball-striking element 12 so that they cannot slide down the ball-striking element 12, thereby holding the weights in place on the training bat 10. The weights 23a, 23b, 23c and 23d preferably have a combined total weight of 3.1 ounces. An attachment rod 24 having a diameter approximately equal to that of the connecting rod 13 is inserted through the holes of weights 23a, 23b, 23c and 23d and into the distal end 12B of ball-striking element 12 so that an aperture 25 in the ball-striking element 12 is aligned with an aperture 26 in the attachment rod 24. A pin 27 is inserted into the apertures 25 and 26, and a second pin 28 is inserted through a second aperture 29 in the attachment rod 24, as shown in Figure 4. The weights 23a, 23b, 23c and 23d are held in place on the training bat 10 by frictional

engagement with pin 28 on the upper end and the distal end 12B of ball-striking element 12 at the lower end, as shown in Figure 2.

[0047] Referring now to Figures 4 and 5, a second weight assembly 30 is positioned on the connecting rod 13 between the distal end 11A of the handle 11 and the proximal end 12A of the ball-striking element 12. The weight assembly 30 preferably comprises a plurality of individual washer-shaped weights 30a, 30b, 30c, 30d, 30e, 30f, 30g and 30h, each having a circular hole with a diameter slightly larger than the connecting rod 13 but smaller than the diameter of ball-striking element 12 and the distal end 11B of the handle 11 so that the weights can be placed on the connecting rod 13 and held in place by frictional engagement with the proximal end 12A of the ball-striking element at the upper end and the distal end 11B of the handle 11A at the lower end. Preferably, the weights 30a, 30b, 30c, 30d, 30e, 30f, 30g and 30h, each have an individual weight of ½ ounce. The weight and balance of the training bat 10 is adjusted by adding on or removing from the training bat 10 a desired number of individual weights of weight assembly 30.

[0048] Increasing the weight of the training bat 10 is preferably accomplished by removing screw 22 and sliding the ball-striking element 12 off of the connecting rod 13. Then, a desired number of individual weights of weight assembly 30 and a resilient spacer 31, made of foam or other resilient material, are placed on the connecting rod 13. The ball-striking element 12 is placed back on the connecting rod 13 so that aperture 20 is aligned with aperture 21. As ball-striking element 12 is moved down connecting rod 13 it contacts the weights and forces them and the resilient spacer 31 against the distal end 11B of the handle 11. The weights of weight assembly 30 and resilient spacer 31 are held in place by frictional engagement with the proximal end 12A of ball-striking element 12 on one end and the distal end 11B of the handle on the other. The resilient spacer 31 prevents movement of the weights by accommodating excess space between the weight assembly

30 and the handle 11 when less than the maximum number of weights are used. The weight of the training bat 10 is reduced by reversing the steps described above.

[0049] While Figure 5 depicts the weight assembly 30 having eight weights 30a, 30b, 30c, 30d, 30e, 30f, 30g and 30h, it should be noted that various numbers of weights can be added or removed to obtain a desired total bat weight for the user. In addition, it should be noted that although the weight of the training bat 10 is preferably adjusted via addition or removal of weights to weight assembly 30 positioned at the center of the training bat 10, weight adjustment can be achieved in an alternative embodiment of the invention by varying the number of weights of weight assembly 20 at the distal end of the training bat 10.

[0050] One preferred embodiment of the ball-striking element 10 has the following dimensions and characteristics:

Overall length of bat 10	31 inches
Weight of bat 10	28 oz.
Length of handle 11	14 inches
Total length of ball-striking element 12	21.125 inches
Exposed length of ball-striking element 12	17 inches
Diameter of ball-striking element 12	1/2 inch
Diameter of pin 16	1/8 inch

[0051] When fabricating the training bat 10, the handle 11 and connecting rod 13 together should preferably weigh between 15.8 and 16.2 ounces. It is difficult to produce a large number of wood handles of precisely the same weight, and therefore the length of

the connecting rod 13 is varied to accommodate variations in the weight of the handle 11 and obtain a combined weight of the handle 11 and connecting rod 13 in the desired range of 15.8 and 16.2 ounces. The ball striking element 12 should weigh approximately 8.6 ounces, and the weight assembly 23 preferably weighs 3.1 ounces, yielding a total bat weight of approximately 27.7 ounces without the addition of weight assembly 30.

[0052] Given the much smaller diameter of the ball-striking element 12 compared with the diameter in the hitting zone of a conventional bat, a batter can develop and improve hitting skills by practicing with the training bat 10 of the invention. The training effect can be further enhanced by using a smaller ball, for example, a ball approximately the size of the core of a conventional baseball, or about 2 inches. In addition, the ball can be made of foam or other soft, resilient material to allow for use of the training bat in a variety of environments, including indoors.

[0053] A swing that results in weak or slight contact between the ball-striking element 12 and the smaller ball will often result in good contact with a regulation bat and baseball. A close miss with the ball-striking element 12 and the smaller ball often results in at least some contact with a conventional bat and ball.

[0054] A training bat is described above. Various details of the invention may be changed without departing from its scope. Furthermore, the foregoing description of the preferred embodiment of the invention and the best mode for practicing the invention are provided for the purpose of illustration only and not for the purpose of limitation--the invention being defined by the claims.